

REMARKS

Claims 1-3, 5-8 and 10 had been pending, claims 4 and 9 having been previously cancelled. In this paper, claims 1 and 6 have been amended to affirmatively recite a soil “containing clay or silt,” to indicate that the inorganic soil-improving material is a “a gas phase rate increasing inorganic soil-improving material,” and to recite “optionally aerating by introducing injected air.” Support for these amendments may be found as follows:

Phrase	Claim Number	Support
Contaminated soil “containing clay or silt”	1 and 6	Specification at page 3, line 3, and pages 3-4, bridging paragraph
“gas phase rate increasing” inorganic soil improving material	1 and 6	Specification at page 4, both paragraphs, and page 5, second paragraph
“Optionally aerating by introducing injected air”	1 and 6	Specification at page 9, paragraph 2; page 11, paragraph 3; page 12, paragraph 2; pages 14-15, bridging paragraph

Applicants have also added new claims 11-12 and 13-14 that recite the soil contaminants. These new claims find support at least in the Specification at page 1 (“Background of the Invention”) which describes soil contaminated with chlorinated organic compounds such as trichloroethylene and petroleum hydrocarbons.

Thus, with these amendments, claims 1-3, 5-8, and 10-14 are pending for examination in this application.

Interview

Applicants wish to thank the Examiner for the productive interview held with Applicants’ representatives on October 11, 2006. During that interview, Applicants’ representatives discussed the fact that Applicants’ invention does not require aeration, unlike Glaze which is based upon aeration (via an entraining air stream and the microenfractionation process which

homogenizes and aerates). Although no agreement was reached, the Examiner indicated he was willing to consider claim amendments that claim aeration is optional in the present application.

Rejection of Claims 1-3, 5-8, and 10 under 35 U.S.C. § 103

The Examiner continues to reject the pending claims under Glaze, et al. (U.S. Patent No. 5,593,888) (“Glaze”) in view of Gardening Series Basics Choosing a Soil Amendment (“Gardening Series”).

Applicants respectfully traverse for the reasons set forth below.

For several reasons, Glaze does not teach or suggest a purifying method that involves an inorganic soil improving amendment that increases the gas phase rate to create an aerobic environment. First, Glaze’s method depends on aeration, *i.e.*, the introduction of generated air, and thus accomplishes the aerobic environment by forced or introduced air. The Summary of the Invention describes two “forms” of the invention, both of which use an “entraining air stream” for “entraining the treated contaminated material.” *See* Glaze at Col. 3, lines 51-60; Col. 4, lines 36-40; Col. 4, lines 41-42; Col. 4, line 53 to Col. 5, line 9. The entraining air stream is generated by a drum mechanism. *See id.* at Col. 3, lines 61-64. As set forth in the Summary, one form of the entraining air stream “comprises a plurality of air currents, and the air current generating means comprises a plurality of paddles extending outwardly from the cylindrical outer surface of the drum.” Glaze at Col. 4, lines 1-5; *see also id.* at Col. 4, lines 13-52 (on the air generating characteristics of the apparatus) and Col. 4, line 67 to Col. 5, line 9.

Thereafter, in both forms of the invention, the treated contaminated material entraining air stream is “microenfractionated,” a process involving homogenization and aeration. Glaze, Col. 3, lines 55-60 and Col. 4, lines 61-67. Moreover, according to Glaze, microenfractionation “literally homogenizes and aerates” the soil, rather than just mix the soil, to increase biological

degradation. *Id.* at Col. 14, lines 45-49. This process is “one of the most critical aspects of the biological treatment of petroleum hydrocarbon contaminated soils.” *Id.* at Col. 14, lines 17-19. Glaze later re-emphasizes that microenfractionation “needs” to be done. *Id.* at Col. 14, lines 51-55; Col. 15, lines 12-15.

Accordingly, Glaze requires an entraining air stream and “microenfractionation,” that is, homogenization and aeration, for bioremediation. Thus, Glaze cannot suggest the need for any soil amendments that increase the gas phase rate to create an aerobic environment because the Glaze system creates the aerobic environment via aeration by generated air.

The claimed invention, in contrast, does not require aeration by generated air. Indeed, on page 9, the Specification expressly states that “it can be optionally chosen to perform or not to perform aeration.” Specification at page 9, paragraph 2. The specification notes later that:

Hence, depending on the situation, aeration of the contaminated soil 1 may be omitted.

Specification at pages 14-15, bridging paragraph. Applicants have amended independent claims 1 and 6 to more expressly recite the optional nature of aeration, *i.e.*, the forced introduction of air. *See* Claims 1 and 6. Applicants also wish to direct the Examiner’s attention to original dependent claims 3 and 8 which had been filed with the further affirmative step of aeration, thereby confirming that the independent claims need not include an aeration step.

Further in contrast to Glaze, the claimed invention yields an aerobic environment by the introduction of gas phase rate increasing inorganic soil amendments that absorb water and maintain non-swelling and non-viscosity properties after absorption. *See* claims 1 and 6; Specification at page 4, paragraphs 1 and 2; page 5, paragraph 2; pages 5 and 6, bridging paragraph; page 6, paragraphs 1, 2, 3; pages 10-11, especially the end of paragraph 3; page 13, paragraph 2.

Glaze does not teach these gas phase rate increasing inorganic soil amendments. Instead, it teaches the preferred use of organic soil amendments at, for example, Col. 5, lines 36-39; Col. 6, lines 19-20; Col. 7, lines 19-23; Col. 9, lines 11-15; and Col. 10, lines 31-33. And, when it discussed the special requirements for clay/silt soils, it notes the use of either organic amendments (such as wood fiber at Col. 9, lines 44-47, and Col. 12, lines 9-12 or alder or wood chips at Col. 11, lines 29-31) or else inorganic amendments, such as sand or pea gravel (Col. 9, lines 44-47; Col. 11, lines 29-31; Col. 12, lines 9-12) that clearly are not gas phase rate increasing materials because they do not absorb water, let alone have both non-swelling and non-viscosity properties after absorbing water.

Moreover, each of the Glaze examples used an organic amendment in the clay/silt soil:

- Examples 1 and 2 used alder sawdust (Col. 29, lines 27-28 and 49-56) in soil with 27% clay and 36% silt (Col. 29, lines 49-50).
- Example 3 used non-cedar sawdust (Col. 30, lines 37-40) “as a bulking agent to allow air pockets for the required oxygen” in “silt mixed with clay” (Col. 30, lines 30-39).
- Example 4 used alder dust (Col. 31, lines 46-47).

Accordingly, Glaze does not suggest the need for gas phase rate increasing inorganic amendments, let alone such amendments in clay/silt soils.

Finally, Glaze and Gardening Series cannot be combined because they teach away from each other. As noted previously, Glaze teaches the addition of sand for clay soils but Gardening Series says not to use sand in clay soils because sand “creates a soil structure similar to concrete.” Gardening Series at page 1. In addition, the skilled person would not consider Gardening Series for a teaching of gas phase rate increasing inorganic soil improving amendments for clay soils because Gardening Series indicates a preference for organic

amendments in clay soils. *See* Gardening Series at 3 (“fibrous amendments like peat, wood chips, tree bark or straw are most effective” with clay soils). Further, the inorganic amendments in Gardening Series includes amendments that do and that do not have the gas phase rate increasing ability (vermiculite, perlite, tire chunks, pea gravel, and sand). *See id.* at 1. Of course, petroleum-based tire chunks are neither inorganic nor would they benefit soil contaminated with petroleum products.

Therefore, because Glaze does not teach or suggest a purifying method that involves an inorganic soil improving amendment that increases the gas phase rate to create an aerobic environment, and because Glaze and Gardening Series teach away from each other and therefore cannot be combined, no *prima facie* case of obviousness can be made. Applicants respectfully request the Examiner withdraw the rejection under 35 U.S.C. § 103, and allow the pending claims.

CONCLUSION

In view of the foregoing remarks, Applicants respectfully request reconsideration of the application and the timely allowance of the pending claims. If the Examiner does not find the claims allowable, the undersigned requests that, prior to taking action, the Examiner call her at (650) 849-6611 to set up an interview.

Please grant any further extensions of time required to enter this response and charge any additional required fees to Deposit Account No. 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

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By: Elisabeth Barek
Elisabeth Jaffe Barek
Reg. No. 46,797
Customer No. 22,852